REPORT ON THE

JR PROPOERTY

MEMPHIS CREEK AREA

SLOCAN MINING DIVISION

B. C., CANADA

FOR:

Operator: Manny Consultants Ltd. 4550 Harriet St.

4550 Harriet St. Vancouver, B. C. V5V 4K5 Canada

ì

Owner: James Amendologine

COVERING:

FILMED

JR-1 JR-2 1 unit 9 units Record No. 5109 (10) 5101 (9)

LOCATED:

Latitude: 49° 48'42"

Longitude: 117° 27' 26'42"

NTS: 82F/14W

Elevation: 2400' (731 m) - 4400' (1341 m) ASL

PREPARED BY:

P. J. Santos, P. Eng. ANGINEL RESOURCES LTD. 626 - 9th Ave. Castlegar, B. C. V1N 1M4 Canada

# GEOLOGICAL BRANCH ASSESSMENT REPORT

10,2°Copy No.

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#### 1. SUMMARY AND CONCLUSION

The JR property is a base metal and precious metal prospect located in the Memphis Creek Area in the Slocan Mining Division of British Columbia.

In 1986, a program of soil sampling and line cutting was carried out by Manny Consultants Ltd. In 1987, the author conducted geologic mapping of the property using the existing soil sampling lines for control. One of the underground workings (First Level) was also mapped.

A total of 14.4 kilometers of lines were marked and sampled.

A total of 302 soil samples were collected and analyzed geochemically for Pt, Au, Ag, As, Pb, Zn, and Cu.

Three very significant anomalies were found by the geochem survey. The geologic mapping has shown that the anomaly at L11,150N is very significant since boulders of mineralized quartz were found at the area of the anomaly.

One other anomaly is also fairly significant since quartz boulders were also found in the vicinity of the anomaly but no significant mineralization was found in these quartz boulders. The mineralization at the underground and surface workings in the White Hope Mine consists of massive to disseminated galena and sphalerite with minor copper and tetrahedrite associated with quartz veins cutting altered granite porphyry.

A program of detailed geochem and trenching followed by diamond drilling if warranted is recommended for the property.

#### 2. INTRODUCTION

In 1986, Manny Consultants conducted a program of soil sampling on the JR-2 claim. At the request of Manny Amedologine, P. Eng., this author conducted a geologic mapping of the property in 1987 using the existing grid for control to correlate the geochemical findings with the geology of the property.

#### LOCATION AND ACCESS

The JR Property is located 4 kilometers north of Slocan City on the south side of Memphis Creek, in the Slocan Mining Division of British Columbia (see Plate 1).

The property is plotted on NTS 82F/14W with geographic coordinates of latitude 49° 49' and longitude 117° 27' (see Plate 2).

Access to the property is by way of Highway No. 6 which runs across the northern boundary of the property. Access to the southern part of the property is by bush trail from a logging road that connects with the Ottawa Mine road which in turn connects with Highway No. 6 at Slocan City.

The property lies at an elevation between 2400 feet (731 meters) and 4400 feet (1341 meters) above sea level. The topography of the

property is moderate to steep and is covered with mature merchantable timber.

## 4. PROPERTY DESCRIPTION AND HISTORY

The JR Property consists of one 2-post claim, the JR-1 and one modified grid claim, the JR-2 which is comprised of nine metric units. The claims are plotted on Plate 2 and pertinent details are listed below:

Claims	No. of Units	Record No.	Due Dates
JR-1	1	5109 (10)	Oct. 8, 1987
JR-2	9	5101 (9)	Sept. 22, 1987

It appears that the legal corner post of JR-1 and JR-2 are misplotted on the claim map 400 meters too far to the west then they should be.

The JR-2 claim completely surrounds the White Hope Mine (White Hope #1 & #2) which are crown-granted claims that were worked in the 1920's and again in the 1960's for lead, zinc, gold and silver.

During the course of the mapping several very old trenches, test pits, and adits were found which are at least 50 years old. There are no records of these workings but were probably done at the time when the mines around Slocan City were very active in the 1920's. The JR claims were staked in 1985, then re-staked in 1986 and are now owned by Manny Consultants Ltd. In 1986 and 1987 a geochemical sampling program and geologic mapping were conducted on the property.

#### 5. REGIONAL GEOLOGY

The JR claims are located in an area overlain by altered gneisses and altered granodiorite, and diorite belonging to the Early Mesozoic Milford Series and by porphyritic granite intrusions belonging to the Cretaceous Nelson Intrusion (see Plate 3, geology by H. W. Little, 1960).

The gneisses are granodioritic to dioritic in composition and distinctly layered. Bands of lamprophyre dikes and basalt sills occur within the gneiss. The gneisses exhibit stages of alteration ranging from propylitization to argillic alteration.

The granodiorite are massive, homogeneous, and equigranular and grades to diorite in places. It also appears to grade into the altered gneisses.

The porphyritic granite are massive, very coarse crystalline and contains large pink feldspar phenocrysts.

The gneiss and granodiorite are well exposed on the cliffs on Highway 6 north of Slocan City overlooking Slocan Lake. The ultrabasic sills impart rusty stains on the cliffs when these sills weather.

### 6. LOCAL GEOLOGY

There are three distinct rock types underlaying the JR claims (see Plate 4). The oldest are thick to medium layered gneiss of granitic to granodioritic composition which have undergone varying amounts of argillic alteration and serecitization that impart a dull greenish tan color of the gneiss. The gneiss occurs west of line L8W and are well exposed along Highway 6 on the western part of the property. Lamprophyre and other ultrabasic rocks such as andesite occur as dikes and sills in the gneiss. The gneiss parts along its gneissocity and forms distinctive layered outcrops. The layering of the gneiss trend north to northwest and dip to the northeast.

A massive uniform, equigranular granodioite occur on the western border of the claim and appears to grade into the layered gneiss, the granodiorite itself being parallel-jointed along the same trend as that of the layering of the gneiss.

The eastern half of JR-2 is underlain by porphyritic granite. The steep cliffs on the southeastern part of the claim are comprised of porphyritic granite. The porphyritic granite is characteristically parallel-jointed that generally trend north and dip steeply or vertically.

The porphyritic granite characteristically contain large laths of pink feldspar phenocrysts in a matirx of coarse, equigranular granite. The phenocrysts occur in varying concentrations. Thin dikes of pegmatite consisting of large crystals of pink feldspar and quartz cut through the porphyritic granite.

### 7. MINERALIZATION

Quartz veins, varying in thickness of six inches (15 cm) to 3 feet (.9 m) cut both the gneiss and the porphyritic granite. The quartz veins are bordered by a wider zone of alteration in the gneiss compared to a much narrower alteration zone in the porphyritic granite. The hydrothermal alteration consists of minor propyllitic alteration, argillic alteration, and silicification.

The quartz often contain disseminations and massive concentrations of sulfides. These sulfides are galena, sphalerite, and tetrahedrite.

In the course of the geologic mapping, several old trenches test pits, and adits were found (see Plate 4). The workings on the old White Hope Mine at line 6 W has three adits spaced 100 feet (30.5 m) apart vertically and several surface trenches. The lowermost (first) level was driven entirely in porphyritic granite too short to intersect the down dip extension of the veins on the upper levels, apparently driven as a haulage level to service the upper levels but no interconnecting ore pass was built.

The portal of the middle (second) level was caved. From the size of the dump, it must be at least 100 meters in length. The uppermost (third) level was driven following a quartz vein in altered granite about one meter thick that striked azimuth 045° and dipped 70° to the northeast. It was not feasible to map this drift farther since the planking over the ore pass to the lower (second) level had completely rotted preventing further access. From the size of the mine dump, the workings on the third level must at least be 200 meters in length.

There are several surface trenches on line 6 W above the workings at stations 9+50N and 10N but all of these trenches have sloughed in. There are quartz vein material in the debris below the trenches indicating that the quartz vein was intersected in these trenches.

Between line 6 W and line 7 W at station 10 N a quartz vein .33 meters thick that strikes Az045° and dips 70° NE is exposed by a surface cut. This quartz vein is associated with massive sphalerite and galena with some tetrahedrite. On line 7 W station 10 N, an adit was driven apparently following a quartz vein, .25 meters wide cutting altered granite. The portal is caved and is not feasible to gain entry into this adit.

There are several long surface trenches in the property but all are sloughed in.

On line 3 W, station 7+50N, a drift was driven following a quartz vein. The portal is partly caved, but from the size of the dump, the drift is no more than 25 meters long. A test pit, partly sloughed in was sunk for about 2 meters following a joint in porphyritic granite on line 4 W station 3+50N.

## 8. GEOCHEMISTRY

In 1986, personnel of Manny Consultants Ltd., under the supervision of Manny Amendologine, P. Eng. conducted a geochemical soil sampling program on the JR-2 claim using a system of grid lines spaced 100 meters apart that ran due north from the southern boundary of the claim which was used as a base line. Soil samples of the B-Horizon were taken every 50 meters. A total of 14.4 line-

kilometers were done and 302 soil samples were taken. The samples were sent in 1987 to Acme Laboratories Ltd. to be geochemically analyzed for Pt, Au, Ag, As, Pb, Zn, and Cu.

The laboratory techniques used in the analyses of the samples are found in the Appendix of this report. Pt and Au were analyzed by FA (Fire Assay) and AA (Atomic Absorption) while the Ag, As, Pb, Zn, and Cu were analyzed by AA.

The geochemical assays are found in the Appendix of this report. The assays were statistically analyzed and plotted and contoured.

The soil sample taken from L6W, 11+00N was taken from the mine dump from the Third Level of the White Hope Mine. As a consequence the assays are exceedingly high indicating that the sample contained pieces of ore from the White Hope Vein. This sample was arbitrarily discarded in the statistical analyses and contouring to avoid unrealistically influencing the geochemical data.

The Pt assays were all low. The Pt content of the samples were all below the detectable limit of 2 ppb Pt. The gold assays of the soil samples are plotted on Plate 5. The gold assays have a mean value of 3.35 ppb and a standard deviation of 6.95 ppb. The mean value plus one standard deviation (10 ppb Au) is considered

anomalous in this report. The assays are contoured on Plate 5.

The geochemical assays in Ag are plotted and contoured on Plate 6. The Ag assays have a mean value of .23 ppm and a standard deviation of .5 ppb. Assays with values equal to or higher than the mean value plus one standard deviation (.75 ppb) are considered anomalous.

The geochemical assays in As are plotted and contoured on Plate 7. The As assays have a mean value of 4.64 ppm and a standard deviation of 2.70 ppm. Assays greater than or equal to the mean plus one standard deviation (7.5 ppm) are considered anomalous.

The geochemical assays in Pb are plotted and contoured on Plate 8. The Pb assays have a mean value of 30 ppm and a standard deviation of 5 7 ppm. Assays with values equal to or higher than the mean plus one standard deviation (87 ppm) are considered anomalous.

The geochemical assays in Zn are plotted and contoured on Plate 9. The Zn assays have a mean value of 122 ppm and a standard deviation of 97 ppm. Assays with values equal to or higher than the mean plus one standard deviation (220 ppm) are considered anomalous.

The area on L1W, 9+50N is on the eastern side of the property. In this area, the soils have anomalous metal values in Zn, Ag, As, and Au. During the geologic mapping, angular quartz boulders and much altered granite boulders were found in the area. This area is part of a much larger area in the middle eastern part of the property that have elevated metal values that have a fairly thick overburden cover. At line L3W, 14N the old timers have drifted on a quartz vein. This area should be explored further by semidetail soil sampling on a 50 M X 50 m grid, followed by a 25 m X 25 m grid if warranted (Anomaly C).

There are other areas with fairly anomalous gold values but these are not accompanied by anomalous values of the other metals. This gold in the soils is probably transported. The geochemical assays in Cu are plotted and contoured on Plate 10. The Pb assays have a mean of 7 ppm and a standard deviation of 3 ppm. In this report, assay values equal to or greater than the mean plus one standard deviation (10 ppm) are considered anomalous.

The geochemical survey on the JR-2 claim has identified three very significant areas: L6W, 10+50N; L11W, 1+50N; and L1W, 9+50N (see Plate 11, Anomaly B, Anomaly A, Anomaly C).

The area on L6W, 10+50N is where the old White Hope Mine is located. In this area, the soils have anomalous metal values in Cu, Pb, Zn, Ag, As and Au. Exploration efforts in this area should include detail soil sampling (25 m X 25 m grid), trenching, and if warranted, diamond drilling, (Anomaly B).

The area on L11W, 1+50N is on the southwest corner of the property. In this area, the soils have anomalous metal values in Cu, Zn, As, and Au. During the geologic mapping, very angular boulders of quartz containing disseminated sulfides were dug up from the overburden on the steep slope above the station. The sulfides in the quartz consist of galena, sphalerite, pyrite, and some tetrahedrite. Detailed soil sampling (25 m X 25 m grid) should be done in this area followed by trenching, and if warranted diamond drilling (Anomaly A).

## 9. <u>RECOMMENDATIONS</u>

Detailed geochemical soil sampling are recommended in three areas of the property:

- (a) L6W, 10+50N Area: Detail soil sampling should be done on a 25 m X 25 m grid as shown on Plate 11.
- (b) L11W, 1+50N Area: Detail soil sampling should be done on a 25 m X 25 m grid as shown on Plate 11.
- (c) L1W, 9+50N Area: Semi-detailed soil sampling should be done on a 50 m X 50 m grid as shown on Plate 11 followed by detailed soil sampling on a 25 m X 25 m grid if warranted.
- (d) Contingent on the results of the above detailed soil sampling, trenching and/or diamond drilling are recommended on the JR property.

## 10. STATEMENT OF COST

Geochemistry: Assays (AA), 302 samples for Cu, Pb, Zn, Ag, As	<b>\$ 1208,00</b>	
Assays (FA & AA), 302 samples for Au and Pt	2416.00	
Sample preparation, 302 samples @ \$ 0.75 per sample	226.50 \$ 3850.50	\$ 3850.50
Geologic Mapping: Geologist, 10 days @ \$ 210/day	\$ 2100.00	
Helper, 7 days @ \$ 50 /day	350.00	
Truck Rental & Disel Fuel - No charge		
	\$ 2450.00	\$ 2450.00
Report Preparation:		
Drafting, 8 days @ \$ 150	\$ 1200.00	
Report writing, 3 days @ \$210	630.00	
Typing & Secretarial	50.00	
Printing & Materials	185.00	
	2065.00	\$ 2065.00
		\$ 8365.50

Note that the cost of line cutting and soil sampling are not included in the above cost since it was done in 1986.

#### Dates Worked:

- P. J. Santos (Geologist):
  June 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 1987
  July 1, 2, 3, 26, 27, 28, 1987
- P. Riebalkin (Helper): June 17, 18, 19, 20, 21, 22, 23, 1987

P.J. Santos, P. Eng.

## 11. BIBLIOGRAPHY

Cairnes, C. E. 1928

Little, H. W. 1960

Minister of Mines, B. C.

Map 272 A: B. C. Dept. of Energy, Mines, & Petroleum Resources.

Nelson map-area, West Half, British Columbia (82 F W½); GSC Memoir 308, 205 pp.

Annual Reports 1928 pp 296, 297: 1950 p 150.

## 12. STATEMENT OF QUALIFICATIONS

I, Perfecto J. Santos, of 626 - 9th Avenue, of the city of Castlegar, in the Province of British Columbia, do hereby certify:

That I am a Consulting Geological Engineer with the firm of Anginel Resources Ltd., where offices are located at 626 - 9th Ave., Castlegar, British Columbia, Canada,

That I am a graduate of the College of Engineering, University of the Philippines, with a Bachelor of Science degree in Mining Engineering (Geology Option),

That I have been practicing my profession continuously for the past twenty-six years,

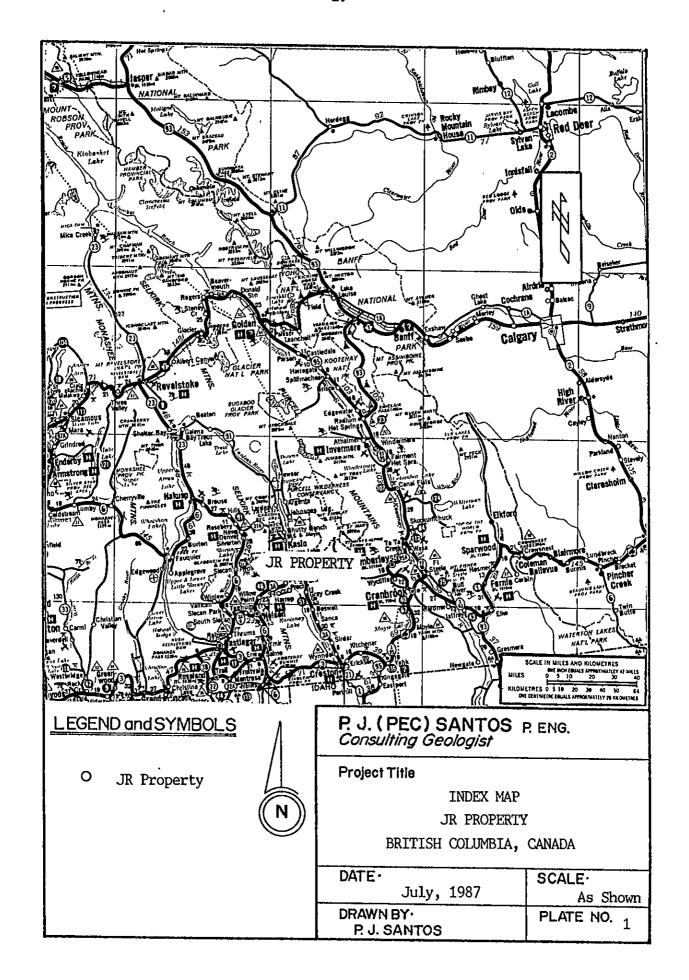
That I have prepared this report based on personal work on the JR property as described on this report.

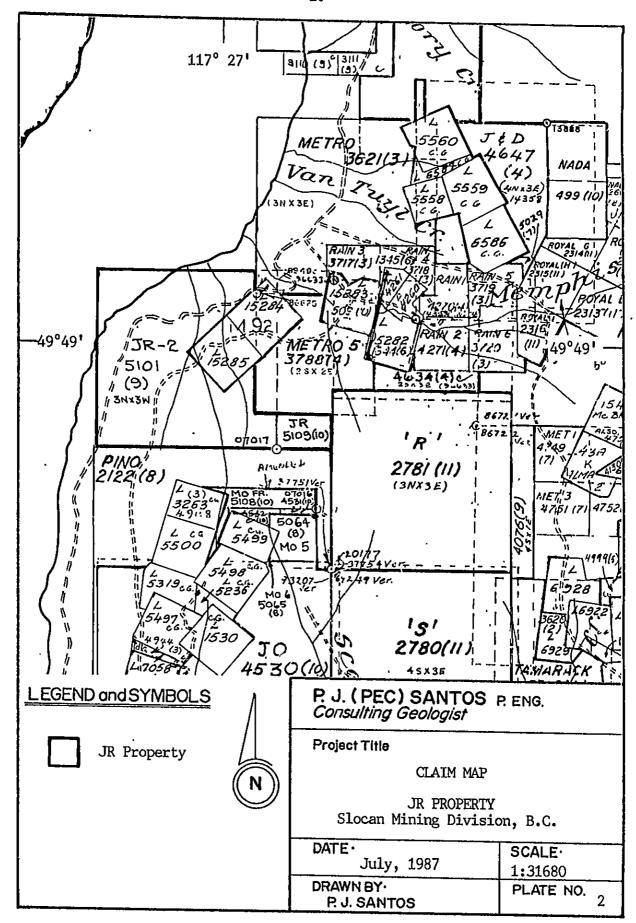
Dated at Castlegar, British Columbia, this 27th day of July, A. D. 1987.

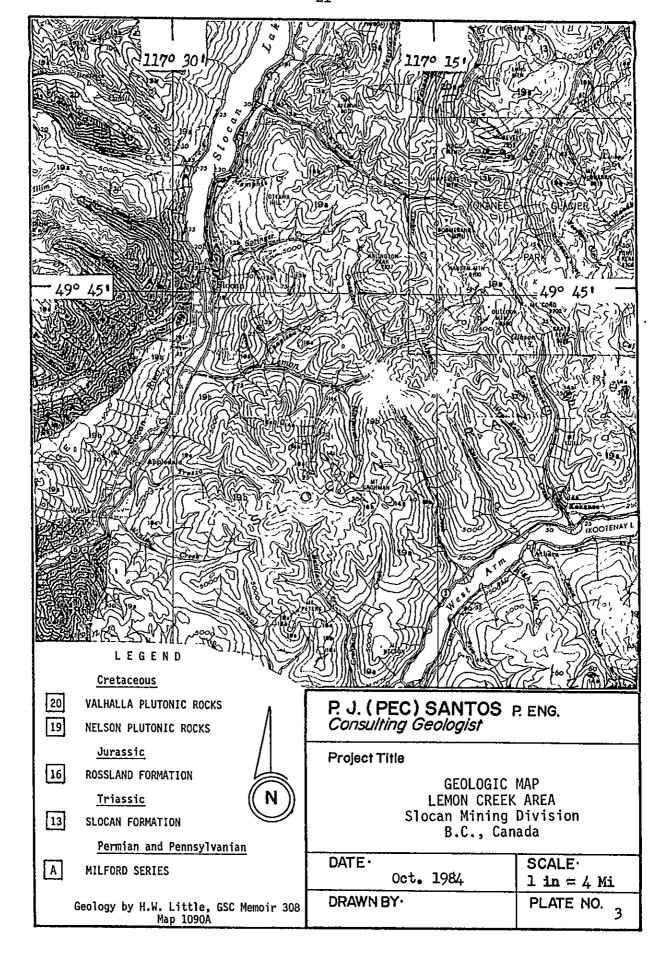
P. J. Santos, P. Eng.

# 13. APPENDIX

- (a) Maps and Illustrations
- (b) Geochem Assay Sheets
- (c) Geochem Techniques







ACME ANALYTICAL LABORATORIES LTD. 852 E.HASTINGS ST.VANCOUVER B.C. V6A 1R6 PHONE 253-3158 DATA LINE 251-1011

DATE RECEIVED:

DATE REPORT MAILED: May 22, 1987

## GEOCHEMICAL ICP ANALYSIS

.500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HN03-H20 AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER. THIS LEACH IS PARTIAL FOR MN.FE.CA.P.CR.MG.BA.TI.B.AL.NA.K.W.SI.ZR.CE.SH.Y.HB AND TA. AU DETECTION LIMIT BY ICP IS 3 PPM. SAMPLE TYPE: SOILS -BOMES AUST BYTO BY FA+AA FROM 10 GM SAMPLE

ASSAYER: NORTH DEAN TOYE. CERTIFIED B.C. ASSAYER.

MANNY	CONSULT	CANTS	PRO	JECT-J-	R FIL	E# 86-	2640	FAGE	1
SAMPLE#	Cu PPM	Pb PPM	Zn FFM	Ag FFM	As PPM	Au** FPB	F't** F'F'B		
L12W 11+00N L12W 10+50N L12W 10+00N L12W 9+50N L12W 9+00N	7	14 56 14 16 45	55 54 119 85 126	. 1 . 1 . 1	5 13 2 4 7	4 2 1 1 1	2 2 2 2 2		
L12W 8+50N L12W 8+00N L12W 7+50N L12W 7+00N L12W 6+50N	7 6 16 7 3		70 106 169 174 64	.1 .2 .2 .1	8 4 8 6 3	2 1 3 2 1	2222		
L12W 6+00N L12W 5+50N L12W 5+00N L12W 4+50N L12W 4+00N	15 17 11 15 10	42 24 19 24 14	36 58 137 47 83	.2 .1 .1 .1 .1	5 5 6 6	3 2 10 3 1	2 2 2 2 2		
L12W 3+50N L12W 3+00N L12W 2+50N L12W 2+00N L12W 1+50N	9 6 14 11 6	19 15 29 36 24	112 17 120 123 125	.1 .1 .1	. 2 7 9 6	1 3 5 1	2 2 2 2 2		
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L11W 10+50N _L11W 10+00N L11W 9+00N L11W 8+50N L11W 8+00N	3 4 4 6 5	10 8	41 74 40 121 112	.1 .1 .3 .1	25 4 9 10	1 1 1 1 4	2222		
L11W 7+50N L11W 7+00N L11W 6+50N L11W 6+00N L11W 5+50N	4 10 6 4 16	18 23 38 13 23	51 201 84 22 125	.1 .1 .1 .3	5 4 6 3 7	2 1 1 2	2222		
L11W 5+00N STD C/FA-5X	5 58	11 40	54 134	7.1	4 42	1 00	2 95		

MANNY	CONSULT	TANTS	PRO.	JECT-J-	R FIL	E# 86-	2640	PA	3E	2
SAMPLE#	Cu PPM	Pb FFM		Ag FFM	As PPM	Au** FFB	Pt** FFB			
L11W 4+50N L11W 4+00N L11W 3+50N L11W 3+00N L11W 2+50N	7 8 7 5 7	18 38 38 28 40	142 155 225 119 195	.2	6 6	1 2 1 1	2 2 2 2 2			
L11W 2+00N L11W 1+50N L11W 1+00N L11W 0+50N L11W 0+00N	5 10 6 8 5	7 67 28 21 23	113 1064 148 161 56	. 1 . 3 . 1 . 1	3 o 2 2 2	1 1 1 1 1 1	2 2 2 2 2			
L10W 11+50N L10W 11+00N L10W 10+50N L10W 10+00N L10W 9+50N	11 3 8 9 5	13 14 26 18 17	123 62 179 123 108	.2 .1 .1 .1	4 2 5 5 5	1 1 1 2 2	2 2 2 2 2			
L10W 9+00N L10W 8+50N L10W 8+00N L10W 7+50N L10W 7+00N	5 4 4 5 4	12 9 12 21 11	72 59 72 118 63	.2 .1 .1 .1	<b>៤៤៦</b> ៦	1 1 1 4	2 2 2 2 2			
L10W 6+50N L10W 6+00N L10W 5+50N L10W 5+00N L10W 4+50N	8 7 6 13 6	22 43 18 12 18	99 187 101 176 145	.4 .2 .1 .2	3 11 4 · 8 2	1 2 1 41 1	2 2 2 2 2			
L10W 4+00N L10W 3+50N L10W 3+00N L10W 2+50N L10W 2+00N	5 8 8 7 6	12 8 36 22 55	108 84 178 99 121	.1 .2 .2 .1	5 2 8 4 6	6 1 1 3 1	2 2 2 2 2 2			
L10W 1+50N L10W 1+00N L10W 0+50N L10W 0+00N L9W 11+50N	6 7 7 12 9	20 26 25 55 12	109 117 126 286 63	.1 .1 .2 .1	6 2 3 4 3	1 1 2 1	2 2 2 2 2 2 2			
L9W 11+00N STD C/FA-5X	8 57	9 40	51 137	7.1	4 38	1 96	2 98			

		MANNY	CONSULT	TANTS	PRO	JECT-J-	-R FIL	E# 86-	2640	FAGE	3
9	34MF	PLE#	Cu PPM	Pb PPM	,Zn ,F:PM	Ag PPM	As PPM	Au** PPB	Pt** PPB		
		10+50N	3	8	60	. 1	3	1	2		
		10+00N	5	8	57	. 1	2	1			
		9+50N	5	11	59	. 1	2	1	2		
L	-9W	9+00N	5	14	81	. 1	2	1	2 2 2		
L	-ċM	8+50N	÷	51	133	.2	2	21	2		
		8+00N	3	14	103	. 1	5	5	2		
		7+50N	5	7	67	. 1	4	42			
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L	_9W	6+50N	12	25	106	.5	4	.3	2		
L	-9W	6+00N	້ອ	21	159	. 1	2	1	2 2 2 2		
L	-9W	5+50N	Ģ	17	159	.3	2	3	2		
		5+00N	ė	16	149	.2	3	7			
		4+50N	9	17	130	.3	2	2	2 2 2 2		
		4+00N	10	24	131	.3	2	1	5		
		3+5011	7	23	176	.2	<u> </u>	1			
			•	20	110	•	•	1	2		
L	-9W	3+00N	フ	27	139	. 1	3	4	2		
L	_9W	2+50N	10	21	167	. 1	5	9	2 2		
L	-9W	2+00N	10	14	96	. 1	6	4	2		
L	.9W	1+50N	7	23	172	.3	2	2	2 2		
		1+00N	8	21	159	.2	2	1	2		
			J		107	• &	~	1	2	•	
		0+50N	11	33	200	.2	7	11	2		
		0+00N	8	18	127	. 1	2	1	2		
		12+00N	Ó	57	159	. 2	. 2	4	2 2		
L	.7W	11+50N	16	11	56	.2	2	1			
L	.7₩	11+00N	8	11	114	. 1	2	ī	2 2		
L	.7W	10+50N	12	10	45	. 1	4	2	2		
		10+00N	Ģ	35	99	.3	3	1	2		
L	.7₩	9+50N	14	57	116	. 4	2	ŝ	2		
L	.7W	9+00N	6	33	78	.2	3	š	2 2 2		
Ł	.7W	8+50N	7	31	97	.2	<u> </u>	6	2		
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		B+00N	4	33	63	. 1	4	2	2		
		7+50N	6	55	211	. 4	7	6	2		
		7+00N	ė	40	122	. 1	2	1	2		
L	.7W	6+50N	8	12	61	. 1	2	ź	2		
		6+00N	4	10	53	. 1	2	1	2		
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		5+50N	14	13	₽4	. 4	3	1	2		
9	TD	C/FA-5X	58	39	134	7.2	39	100	<del>7</del> 9		
						•					

PAGE 4

MANNY	CONSUL	TANTS	PRO	JECT-J-	-R FIL	E# 86-	2640	
SAMPLE#	Cu	F'b	Zn	Aα	As	Au**	<b></b>	
	PFM	PPM	PPM	F:F:M	PPM	PPB	Pt**	
		,		1.1.11	LLII	FFD	FFB	
L7W 5+00N	6	20	77	. 1	7	3	2	
L7W 4+50N	10	14	128	.2	5	3	2	
L7W 4+00N	7	13	124	. 1	3	ē	2	
L7W 3+50N	3	37	29	. i	ò	1	2	
L7W 3+00N	3	11	44	. 1	3	10	2	
					_		~	
L7W 2+50N	5	15	93	. 1	3	1	2	
L7W 2+00N	8	38	203	.2	9	1	2 2 2	
L7W 1+50N	9	16	BO	. 1	4	2	2	
L7W 1+00N	7	7	67	. 1	2	1	2	
L7W 0+50N	7	25	117	. 1	11	2	2	
L7W 0+00N	_							
L6W 12+50N	8	29	75	. 1	8	4	2	
L6W 12+30N L6W 12+00N	8	17	61	. 1	3	7	2	
L6W 11+50N	3 7	33	72	. 2	2	2	2 2 2	
L6W 11+30N	3	8	81	. 1	_ 3	1	2	
LOW II+OON	185	22333	10014	87.7	22	659	2	
L6W 10+50N	ò	942	908	2.0	6	18	2	
L6W 10+00N	12	153	289	. 6	6	22	2	
L6W 9+50N	5	6	26	. 1	4	2		
L6W 9+00N	o.	29	148	. 1	ė	3	2 2	
L6W 8+50N	6	38	136	. 1	5	2	2	
					_	_	•••	
LAW B+OON	4	19	107	. 1	6	1	2	
L6W 7+50N	32	22	84	. 4	6	2		
L6W 7+00N	1 🖰	23	192	. 6	. 9	3	2	
L6W 6+50N	7	29	131	.3	• 2	3	2 2 2 2	
L6W 6+00N	6	43	79	. 1	6	2	2	
L6W 5+55N	8	10	53	. 1	6	1	_	
L6W 5+00N	14	16	153	.2	4	3	2 2	
L6W 4+50N	11	17	138	.2	2		2	
L6W 4+00N	16	18	97	.3	10	1 3	2 2	
L6W 3+50N	5	14	51	. 1	6	10	2	
	_			• •		10	**	
L6M 3+00N	10	14	122	.3	4	2	2	
L6W 2+50N	9	13	158	- 1	3	5	$\tilde{2}$	
L6W 2+00N	8	35	224	. 4	2	1	2 2	
L6W 1+50N	12	32	134	. 4	7	2	2	
FPM 1+00N.	10	31	175	.2	10	2	2	
L6W 0+50N	10	17	<b>60</b>	. 1	2	.6	~	
STD C/FA-5X	58	38	134	7.0	37	7 96	2 100	
	_				<b>—</b> ,		1.00	

MANNY	CONSULT	TANTS	PRO	JECT-j-	-R FIL	E# 86-	2640	f	PAGE	5
SAMPLE#	Cu FFM	Pb PFM	Zn FPM	Ag FFM	As PPM	Au** PFB	Ft** FFB			
L5W 11+00N L5W 10+50N L5W 10+00N L5W 9+50N L5W 9+00N	8 7 4 5 9	37 25 38 17 17	127 115 75 65 139	.3 .2 .1 .1	5 4 6 2 3	2 4 2 1 1	2 2 2 2 2			
L5W 8+50N L5W 8+00N L5W 7+50N L5W 7+00N L5W 6+50N	55865	46 34 28 14 12	120 152 157 78 83	.1 .1 .2 .1	5 4 2 2 6	1 1 2 2 2	2 2 2 2 2 2			
L5W 6+00N L5W 5+50N L5W 5+00N L5W 4+50N L5W 4+00N	9 10 8 4 9	12 15 32 35 8	44 171 221 135 95	.2 .3 .4 .1	4 7 2 7 2	3 1 1 2	2 2 2 2 2			
L5W 3+50N L5W 3+00N L5W 2+50N L5W 2+00N L5W 1+50N	10 3 5 7 5	24 9 40 65 30	197 39 147 163 102	.3	2 2 6 2 2	1 1 2 2 2	2 2 2 2 2			
L5W 1+00N L5W 0+50N L5W 0+00N L4W 13+00N L4W 12+50N	3 8 5 12 5	15 15 14 25 27	30 112 46 80 122	.1 .2 .1 .3	4 3 5 8 5	1 2 1 3 2	2 2 2 2 2			
L4W 12+00N L4W 11+50N L4W 11+00N L4W 10+50N L4W 10+00N	6 8 5 8 3	22 23 39 33 43	152 74 88 120 56	.1 .1 .1	2 8 11 6	2 4 2 1 1	2 2 2 2 2			
L4W 9+50N L4W 9+00N L4W 8+50N L4W 8+00N L4W 7+50N	7 11 4 5 7	155 57 30 43 42	78 110 48 60 234	.3 .2 .1 .1 .2	10 11 4 5 13	4 2 2 3 2	2 2 2 2 2			
L4W 7+00N STD C/FA-5X	7 58	32 38	246 136	7.0	4 43	1 79	2 95			

	MANNY	CONSULT	CANTS	PRO	JECT-J-	-R FIL	E# 86-	2640	FAGE	6
SAMI	PLE#	Cu PPM	Pb PPM	Zn PPM	Ag PPM	As PPM	Au** PPB	Pt** PPB		
	6+50N	8	48	208	. 1	7	10	2		
L4W	6+00N	Ģ	78	286	1.9	13	3			
L4W	5+50N	4	14	81	. 1		Š	2		
	5+00N	7	10			2	2	22		
	4+50N	11	70	185 324	.2 .6	2 4	3	2 2 2		
L4W	4+00N	4	17	76	. 1	3	16	2		
	3+50N	3	13	27	. 1					
	3+00N	3				:3	2	2 2 2		
			40	36	. 1	4	3	2		
	2+50N	4	26	70	.2	6	2	2		
L4W	2+00N	7	19	114	.2	2	1	2		
	1+50N	4	22	119	.2	5	2	2		
	1+00N	フ	115	131	.3	11	2	2		
L4W	0+50N	6	56	162	. 1	3	2	2		
L4W	0+00N	3	23	50	. 1	2	2	2		
	12+50N	4	45	61	. 1	2	4	2 2 2 2 2		
	12+00N	7	53	74	.2	5	3	2		
L3W	11+50N	10	33	135	.2	3	3	3		
LJW	11+00N	3	35	72	. 1	รั	3	2 2 2 2		
	10+50N	5	108	119	.4	7	14	ź		
	10+00N	6	21	138	.1	6	2	2		
L3W	9+50N	7	41	211	.2	11	3	2		
	9+00N	उं	34	88	. 1		3			
	8+50N	4				5	2	2 2 2		
	8+00N		52	156	. 1	5	3 ত	2		
		5	24	160	. 1	• ভ	3	2		
L'2M	7+50N	11	61	196	.2	4	2	2		
	7+00N	5	22	245	. 1	2	9	2		
	6+50N	6	26	100	. i	7	1	2		
	6+00N	10	25	385	.6	2	૩ 2	2		
L3W	5+50N	7	20	63	. 1	7	ō	5		
L3W	5+00N	7	14	125	.3	6	ī	2 2 2 2		
	4+50N	4	24	68	. 1	5	2	2		
L3W	4+00N	11	11	61	. 4	6		_		
	3+50N	5	18	46	. 1		5			
	3+00N	3				<u>ء</u>	2 2	. 2 . 2		
			11	46	- 1	3 2 2	2	. 3		
L2M	2+50N	9	10	58	. 6	2	4	2		
LJW	2+00N	12	63	171	. 4	15	4	2		
	C/FA-5X	57	41	134	7.0					
	-/111 01	J,	71	1 24	7.0	35	104	104		

MANNY	CONSULT	<b>TANTS</b>	FRO	JECT-J-	-R FIL	E# 86~	2640	FAGE
SAMPLE#	Cu FFM	Fb PPM	Zn PPM	Aạ F∙F∙M	As FFM	Au** PPB	Ft** FFB	
L3W 1+50N	10	43	250	.3	8	ı.	-	
L3W 1+00N	8	12	66	.2	2	6	2	
L3W O+50N	7	28	138		7	4 2	2	
L3W O+OON	11	14	125	.2	ģ	1	2 2	
L2W 13+50N	15	6	54	. 1	2		2	
L2W 13+00N	15	4	56	. 1	2	3	2	
L2W 12+50N	5	8	52	. 1	3	2	2	
L2W 12+00N	7	9	73	.2	2	2	2	
L2W 11+50N	5	13	65	.2	2	2	2 2	
L2W 11+00N	6	15	107	. 1	2	1	2	
L2W 10+50N	4	19	116	. 1	3	•	0	
L2W 10+00N	6	14	78	. 1	3	1 2	2	
L2W 9+50N	4	21	?5	. 1	3	1	2 2	
L2W 9+00N	7	19	108	.3	ى م	2	2	
L2W 8+50N	4	6	51	.1	4 2	ī	2	
L2W 8+00N	4	7	63	. 1			2	
L2W 7+50N	3	13	56	.2	2	2	2	
L2W 7+00N	4	10	5 <del>9</del>	. 1	÷	2	2 2	
L2W 6+50N	s	22	93	. 1	2	2	2	
L2W 6+00N	6	47	105	. 1	22228	7	2	
L2W 5+50N	5	31	66	.2			2	
L2W 5+00N	3	26	114	.3	2	4	2	
L2W 4+50N	4	16	123	.2	2	1	2	
L2W 4+00N	9	18	91	. 1	2 . 2 . 2 .	1	2	
L2W 3+50N	7	46	85	.2	3	1	2	
L2W 3+00N	6	48	82	.2	7	3	2	
L2W 2+50N	10	19	109	.3	6		2	
L2W 1+50N	9	15	52	.3	3		2	
L2W 1+00N	Ŕ	13	133	.2	2	4	2	
L2W 0+50N	Ż	11	54	. 1	2	3	2	
	•		D4	• •	2	3	2	
L2W 0+00N	8	13	85	.2	3	3	2	
L1W 14+00N	10	4	43	. 1	4	2	2	
L1W 13+50N	11	41	125	.2	7	2	2	
L1W 9+50N	8	22	236	5.9	7	64	2	
L1W 9+00N	3	17	108	. 1	2	2	2	
L1W 8+50N	6	10	79	.2	3	3	2	
STD C/FA-5X	58	36	135	7.0	39	96	<b>9</b> 5	

MANNY	CONSUL.	TANTS	PRO	JECT-J-	-R FIL	.E# 86-	2640	FAGE	ម
SAMPLE#	Cu FFM	Pb PPM	Zn FFM	40 PPM	As PPM	AU** PFB	Pt** PPB		
L1W 8+00N L1W 7+50N L1W 7+00N	6	18 39	144 113	. 4 . 1	4 10	2 3	2		
L1W 6+50N L1W 6+00N	7 9 10	31 37 40	면() 147 7면	. 1	5 5 13	2 4 2	2000		
L1W 5+50N L1W 5+00N	8	147 36	106 187	.1	10	4			
L1W 4+50N L1W 4+00N	<del>9</del> 7	20	169	.2	6	2	2020		
L1W 3+50N	8	21 17	114 82	.1	2 8	4 1	2 2		
L1W 3+00N L1W 2+50N	6 7	12	112	. 1	4	2	2		
L1W 2+00N	6	57 11	141 101	. 1 . 1	14 5	፲ 1	2		
L1W 1+450N L1W 1+400N	8 7	153 14	387 143	5.6 .2	5 5	5 3	2 2 2 2 2		
L1W 1+350N	7	18	146	. 1	2	1	2		
L1W 1+300N L1W 1+250N	4 6	18 21	90 84	.2 .3	2 2 2	2	2		
L1W 1+200N L1W 1+150N	9 8	7 11	80 141	.1	4 2	3	2 2 2 2		
L1W 1+100N	6	31	105	. 1	2	1	2		
L1W 1+50N L1W 1+050N	6	33	94	. 1	10	2	2		
L1W 1+000N	6 8	27 20	144 119	.4	4 · 台	77 2	ខេត្តស		
L1W 1+00N	17	28	124	.6	. 6	3	2		
L1W 0+50N L1W 0+00N	12 18	71 67	100	1.4	5	3	2		
STD C/FA-5X	43 43	42	144 139	.3 6.9	41	99 3	2 101		

MANNY	CONSULTANTS	PROJ	ECT -	J-R	FILE #	86-264	10	Page	9
SAMPLE#	CU	PB	ZN	AG	as As	AU**	PT**		
Line 8W	PPM	PPM	PPM	499		PPB	PPB		
L12W 11+0	ON 18	40	174	. 1	11	В	2		
L12W 10+5	ion 6	12	62	. 1	- <b>-</b>	1	2		
L12W 10+0	ON 7	4	54	. 1		ī			
L12W 9+50		11	110	. 1		1	2		
L12W 9+00	N 4	11	116	- i		î	2 2 2		
L12W 8+50	N 9	20	87	- 1	2	1	2		
L12W 8+00	N B	20	152	. 1		4	2		
L12W 7+50	N 10	12	170	. 1		1	2		
L12W 7+00		5	13	. 1		ī	2		
L12W 6+50	N B	8	32	. 1		ī	2		
L12W 6+00		29	31	. 1	4	1	· 2		
L12W 5+50	_	37	32	. 1	-	i	2		
L12W 5+00		25	104	. 1	-	1	2		
L12W 4+50		40	118	. 1		1	2		
L12W 4+00	N 9	20	84	. 1		ī	2		
L12W 3+50		15	88	. 1	6	1	2		
L12W 3+00	N 6	14	199	. 1	_	1	2		
L12W 2+50		40	321	. 3	-	3	2		
L12W 2+00		29	228	. 1		1	2		
L12W 1+50	N 8	43	187	. 1		ī	2		
L12W 1+00		47	106	. 1	5	1	2		
L12W 0+50		22	148	. 1		उँ	2		
L12W 0+00		17	89	.5		5	2		
STD C/FA-	5X 59	38	131	6.7		102	99		

## GEOCHEMICAL LABORATORY TECHNIQUES

#### SAMPLE PREPARATION

Soils, silts, lake bottom sediments - Samples are sorted and dried at 50°C for 12 - 16 hours. Dried material is then screened to obtain the -80 mesh component of each sample. Coarse material is discarded unless other instructions are received. Other mesh sizes are available if required.

Rock chips or pieces of core designeated as rock geochem samples are dried, crushed and then pulverized to -100 mesh in a ring grinder. The sample is homogenized and packaged.

### SAMPLE ANALYSES

- (a) ppm Copper, Lead, Zinc, Silver: A 1.0 gm portion of sample is digested in conc. perchloric-nitric acid (HClO4-HNO3) for approx. 2 hrs. The digested sample is cooled and made up to 25 mls with distilled water. The solution is mixed and solids are allowed to settle. Copper, lead, zinc and silver are determined by atomic absorption techniques using background correction for lead and silver analysis.
- (b) ppm Arsenic: Digest as above. Generate arsine using the borohydride technique and determine the arsenic concentration by atomic
  absorption analyses.
- (c) ppb Gold: 5 gm samples ashed 0 800°C for 1 hr., digested with aqua regia twice to dryness taken up in 25% HCl $^-$ , Au extracted as the bromide into MIBK and analyzed via A.A.
- (d) ppm Ba, Sr, Mg, Ca & Na: 0.2 0.5 gm samples digested with HClO<sub>4</sub>-HNO<sub>3</sub>-HF, to dryness taken up in 10% HClO<sub>4</sub>-with an ionization suppressent added and analyzed via A.A. accetylene-nitrous oxide for Ba, Mg. Ca & Sr.
- (e) ppm Te: 1 5 gm digested with aqua regia, the Te extracted into MIBK as the bromide and analyzed via A.A. using background correction.
- (f) Cold Extractable Metals: 1 gm sample is leached for 1 hour with 25 mls of 0.1M HCl in a hot water bath, filtered (Whatman #31) and then analyzed via standard A.A. techniques.

